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L9: ANSWER 1 OF 2: HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:5525 HCAPLUS
 DOCUMENT NUMBER: 138:61392
 TITLE: Composite **scaffold** with a fixation device
 for the repair and regeneration of tissue
 INVENTOR(S): Brown, Kelly R.; Zimmerman, Mark C.
 ; Li, Yufu
 PATENT ASSIGNEE(S): Ethicon, Inc., USA
 SOURCE: U.S. Pat. Appl. Publ., 12 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003004578	A1	20030102	US 2001-893813	20010628
EP 1277450	A2	20030122	EP 2002-254534	20020627

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.: US 2001-893813 A 20010628

AB A prosthetic implant having a tissue **scaffold** and a fixation device with a **scaffold** support and an anchoring post. The anchoring post extends from a surface of the **scaffold** support at a selected angle with the **scaffold** support embedded within the **scaffold**. The **scaffold** has a porous **ceramic** phase and a porous polymer phase. The polymer is foamed while in soln. that is infused in the pores of the **ceramic** to create a interphase junction of interlocked porous materials and embedding the **scaffold** support portion of the fixation device. The preferred method for foaming is by lyophilization. The **scaffold** may be infused or coated with a variety of bioactive materials to induce ingrowth or to release a medicament. The multilayered porous **scaffold** can mimic the morphol. of an injured tissue junction with a gradient morphol. and cell compn. A soln. of the polymer to be lyophilized into a foam was prep'd., composed of a 95/5 wt. ratio of 1,4-dioxane to 35/65 PCL/PGA (.epsilon.-caprolactone-glycolide copolymer). The soln. was heated and the soln. was filtered. A **ceramic** tablet of porous hydroxyapatite was fabricated. A bioabsorbable fixation component was manuf'd. by using an injection molding process. The polymer used to manuf. the fixation components was a copolymer of 85% PLA and 15% PGA (85/15 PLA/PGA). The fixation component proposed by the foregoing process was threaded through the 2-mm hole prefabricated in the **ceramic** tablet.

IT 1305-78-8, Calcium oxide, biological studies 1306-05-4, Fluorapatite (Ca₅F(PO₄)₃) 1306-06-5, Hydroxyapatite 7757-87-1 7758-87-4, Tricalcium phosphate 7778-18-9, Calcium sulfate 7789-75-5, Calcium fluoride, biological studies 10103-46-5, Calcium phosphate 13767-12-9, Tetracalcium phosphate
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (ceramic; composite **scaffold** with fixation device for repair and regeneration of tissue)

RN 1305-78-8 HCAPLUS
 CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)

Ca=O

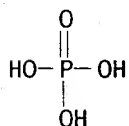
RN 1306-05-4 HCAPLUS
 CN Fluorapatite (Ca₅F(PO₄)₃) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
F	1	14762-94-8
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 1306-06-5 HCAPLUS
 CN Hydroxylapatite (Ca₅(OH)(PO₄)₃) (9CI) (CA INDEX NAME)

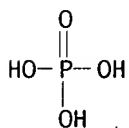
Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 7757-87-1 HCAPLUS
 CN Phosphoric acid, magnesium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



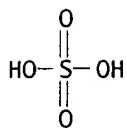
3/2 Mg

RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

RN 7778-18-9 HCAPLUS
 CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)

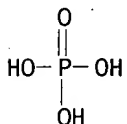


O Ca

RN 7789-75-5 HCAPLUS
CN Calcium fluoride (CaF₂) (9CI) (CA INDEX NAME)

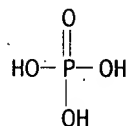
F—Ca—F

RN 10103-46-5 HCAPLUS
CN Phosphoric acid, calcium salt (8CI, 9CI) (CA INDEX NAME)



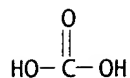
Ox Ca

RN 13767-12-9 HCAPLUS
CN Phosphoric acid, calcium salt (3:4) (8CI, 9CI) (CA INDEX NAME)



O4/3 Ca

IT 471-34-1, Calcium carbonate, biological studies 30846-39-0
, Glycolide-L-lactide copolymer 41706-81-4, .epsilon.-
Caprolactone-glycolide copolymer 65408-67-5,
.epsilon.-Caprolactone-L-lactide copolymer 80137-67-3,
.epsilon.-Caprolactone-lactic acid copolymer 129771-65-9,
.epsilon.-Caprolactone-D-lactide copolymer
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological
study); USES (Uses)
(composite **scaffold** with fixation device for repair and
regeneration of tissue)
RN 471-34-1 HCAPLUS
CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 30846-39-0 HCAPLUS

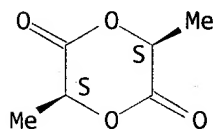
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with
1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

CM 1

CRN 4511-42-6

CMF C6 H8 O4

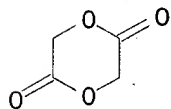
Absolute stereochemistry.



CM 2

CRN 502-97-6

CMF C4 H4 O4



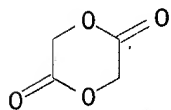
RN 41706-81-4 HCAPLUS

CN 1,4-Dioxane-2,5-dione, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

CRN 502-97-6

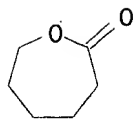
CMF C4 H4 O4



CM 2

CRN 502-44-3

CMF C6 H10 O2

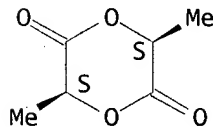


RN 65408-67-5 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 2-oxepanone
 (9CI) (CA INDEX NAME)

CM 1

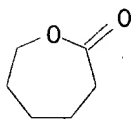
CRN 4511-42-6
 CMF C6 H8 O4

Absolute stereochemistry.



CM 2

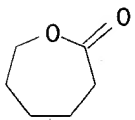
CRN 502-44-3
 CMF C6 H10 O2



RN 80137-67-3 HCAPLUS
 CN Propanoic acid, 2-hydroxy-, polymer with 2-oxepanone (9CI) (CA INDEX
 NAME)

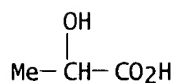
CM 1

CRN 502-44-3
 CMF C6 H10 O2



CM 2

CRN 50-21-5
 CMF C3 H6 O3

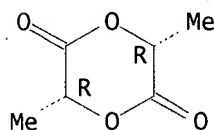


RN 129771-65-9 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R,6R)-, polymer with 2-oxepanone
 (9CI) (CA INDEX NAME)

CM 1

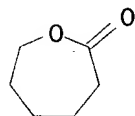
CRN 13076-17-0
 CMF C6 H8 O4

Absolute stereochemistry.



CM 2

CRN 502-44-3
 CMF C6 H10 O2



IT 1398-61-4, Chitin 9004-61-9, Hyaluronic acid
 9005-32-7, Alginic acid
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (composite **scaffold** with fixation device for repair and
 regeneration of tissue)

RN 1398-61-4 HCAPLUS
 CN Chitin (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9004-61-9 HCAPLUS
 CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-32-7 HCAPLUS
 CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM A61F002-02
 NCL 623023720; 623023760
 CC 63-7 (Pharmaceuticals)
 ST composite **scaffold** fixation device **ceramic** polyester;
 tissue regeneration repair polyester **ceramic**

- IT Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(aliph.; composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caprolactone-glycolide; composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caprolactone-lactic acid; composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caprolactone-lactide; composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT Animal tissue
Freeze drying
Interface
Nonwoven fabrics
Textiles
(composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT Polyester rubber
Polymers, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT Collagens, biological studies
Elastins
Growth factors, animal
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT Prosthetic materials and Prosthetics
(composites, implants; composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dilactone-based; composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT Drug delivery systems
Prosthetic materials and Prosthetics
(implants; composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT Molding of plastics and rubbers
(injection; composite **scaffold** with fixation device for repair and regeneration of tissue)
- IT 1305-78-8, Calcium oxide, biological studies 1306-05-4, Fluorapatite (Ca₅F(PO₄)₃) 1306-06-5, Hydroxyapatite 7757-87-1 7758-87-4, Tricalcium phosphate 7778-18-9, Calcium sulfate 7789-75-5, Calcium fluoride, biological studies 10103-46-5, Calcium phosphate 13767-12-9, Tetracalcium phosphate

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(**ceramic**; composite **scaffold** with fixation device for repair and regeneration of tissue)

IT 471-34-1, Calcium carbonate, biological studies 30846-39-0

, Glycolide-L-lactide copolymer 41706-81-4, .epsilon.-

Caprolactone-glycolide copolymer 65408-67-5,

.epsilon.-Caprolactone-L-lactide copolymer 80137-67-3,

.epsilon.-Caprolactone-lactic acid copolymer 129771-65-9,

.epsilon.-Caprolactone-D-lactide copolymer

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(composite **scaffold** with fixation device for repair and regeneration of tissue)

IT 1398-61-4, Chitin 9004-61-9, Hyaluronic acid

9005-32-7, Alginic acid

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(composite **scaffold** with fixation device for repair and regeneration of tissue)

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L9 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:5239 HCAPLUS

DOCUMENT NUMBER: 138:61423

TITLE: Porous **ceramic**/porous polymer layered
scaffolds for the repair and regeneration of
tissueINVENTOR(S): **Brown, Kelly R.; Yuan, Jenny J.;**
Li, Yufu; Zimmerman, Mark C.

PATENT ASSIGNEE(S): Ethicon, Inc., USA

SOURCE: U.S. Pat. Appl. Publ., 17 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003003127	A1	20030102	US 2001-892993	20010627
EP 1270025	A2	20030102	EP 2002-254457	20020626
EP 1270025	A3	20030326		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRIORITY APPLN. INFO.: US 2001-892993 A 20010627

AB A composite **scaffold** with a porous **ceramic** phase and a porous polymer phase. The polymer is foamed while in soln. that is infused in the pores of the **ceramic** to create a interphase junction of interlocked porous materials. The preferred method for foaming is by lyophilization. The **scaffold** may be infused or coated with a variety of bioactive materials to induce ingrowth or to release a medicament. The multi-layered porous **scaffold** can mimic the morphol. of an injured tissue junction with a gradient morphol. and cell compn., such as articular cartilage. A bilayered **scaffold** is comprised of a porous polymer phase (caprolactone-dioxanone copolymer) and porous **ceramic** phase.

IT **41706-81-4P**, Caprolactone-glycolide copolymer

RL: DEV (Device component use); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(porous **ceramic**/porous polymer layered **scaffolds**
for the repair and regeneration of tissue)

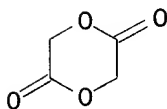
RN 41706-81-4 HCAPLUS

CN 1,4-Dioxane-2,5-dione, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

CRN 502-97-6

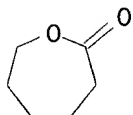
CMF C4 H4 O4



CM 2

CRN 502-44-3

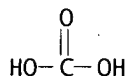
CMF C6 H10 O2



IT 471-34-1, Calcium carbonate, biological studies 1305-78-8
 , Calcium oxide, biological studies 1306-01-0, Tetracalcium
 phosphate 1306-05-4, Fluorapatite (Ca5F(P04)3) 1306-06-5
 , Hydroxyapatite 1398-61-4, Chitin 7758-87-4,
 Tricalcium phosphate 7778-18-9, Calcium sulfate
 7789-75-5, Calcium fluoride, biological studies 9004-61-9
 , Hyaluronic acid 9005-32-7, Alginic acid 25618-23-9,
 Calcium magnesium phosphate 65408-67-5, Caprolactone-L-lactide
 copolymer 70524-20-8, Caprolactone-lactide copolymer
 129771-65-9, 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R,6R)-,
 polymer with 2-oxepanone
 RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological
 study); USES (Uses)
 (porous ceramic/porous polymer layered scaffolds
 for the repair and regeneration of tissue)

RN 471-34-1 HCAPLUS

CN Carbonic acid calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 1305-78-8 HCAPLUS

CN Calcium oxide (CaO) (9CI) (CA INDEX NAME)



RN 1306-01-0 HCAPLUS

CN Calcium oxide phosphate (Ca4O(P04)2) (7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
O4P	2	14265-44-2
Ca	4	7440-70-2

RN 1306-05-4 HCAPLUS

CN Fluorapatite (Ca5F(P04)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
F	1	14762-94-8
O4P	3	14265-44-2
Ca	5	7440-70-2

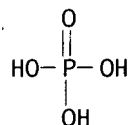
RN 1306-06-5 HCAPLUS
 CN Hydroxylapatite (Ca5(OH)(PO4)3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	1	14280-30-9
O4P	3	14265-44-2
Ca	5	7440-70-2

RN 1398-61-4 HCAPLUS
 CN Chitin (8CI, 9CI) (CA INDEX NAME)

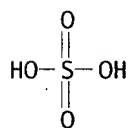
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RN 7758-87-4 HCAPLUS
 CN Phosphoric acid, calcium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Ca

RN 7778-18-9 HCAPLUS
 CN Sulfuric acid, calcium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Ca

RN 7789-75-5 HCAPLUS
 CN Calcium fluoride (CaF2) (9CI) (CA INDEX NAME)



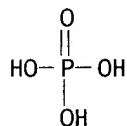
RN 9004-61-9 HCAPLUS
 CN Hyaluronic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 9005-32-7 HCAPLUS
 CN Alginic acid (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 25618-23-9 HCAPLUS
 CN Phosphoric acid, calcium magnesium salt (8CI, 9CI) (CA INDEX NAME)



x Ca

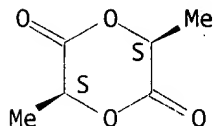
x Mg

RN 65408-67-5 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

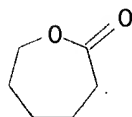
CRN 4511-42-6
 CMF C6 H8 O4

Absolute stereochemistry.



CM 2

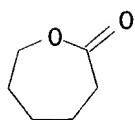
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 CMF C6 H10 O2



RN 70524-20-8 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

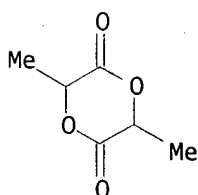
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CRN 502-44-3
CMF C6 H10 O2



CM 2

CRN 95-96-5
CMF C6 H8 O4

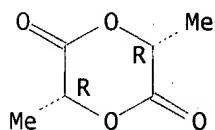


RN 129771-65-9 HCAPLUS
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R,6R)-, polymer with 2-oxepanone (9CI) (CA INDEX NAME)

CM 1

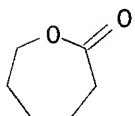
CRN 13076-17-0
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

CRN 502-44-3
CMF C6 H10 O2



IC ICM A61K031-74
NCL 424423000
CC 63-8 (Pharmaceuticals)

- ST composite polymer **ceramic porous scaffold tissue**
- IT Cartilage
(articular; porous **ceramic/porous polymer layered scaffolds** for the repair and regeneration of tissue)
- IT Prosthetic materials and Prosthetics
(composites; porous **ceramic/porous polymer layered scaffolds** for the repair and regeneration of tissue)
- IT Spinal column
(disks; porous **ceramic/porous polymer layered scaffolds** for the repair and regeneration of tissue)
- IT Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lactone-based; porous **ceramic/porous polymer layered scaffolds** for the repair and regeneration of tissue)
- IT Animal tissue
Meniscus
(porous **ceramic/porous polymer layered scaffolds** for the repair and regeneration of tissue)
- IT Collagens, biological studies
Elastins
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(porous **ceramic/porous polymer layered scaffolds** for the repair and regeneration of tissue)
- IT **41706-81-4P**, Caprolactone-glycolide copolymer
RL: DEV (Device component use); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(porous **ceramic/porous polymer layered scaffolds** for the repair and regeneration of tissue)
- IT **471-34-1**, Calcium carbonate, biological studies **1305-78-8**, Calcium oxide, biological studies **1306-01-0**, Tetracalcium phosphate **1306-05-4**, Fluorapatite (Ca₅F(PO₄)₃) **1306-06-5**, Hydroxyapatite **1398-61-4**, Chitin **7758-87-4**, Tricalcium phosphate **7778-18-9**, Calcium sulfate **7789-75-5**, Calcium fluoride, biological studies **9004-61-9**, Hyaluronic acid **9005-32-7**, Alginic acid **25618-23-9**, Calcium magnesium phosphate **65408-67-5**, Caprolactone-L-lactide copolymer **70524-20-8**, Caprolactone-lactide copolymer **129771-65-9**, 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R,6R)-, polymer with 2-oxepanone
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(porous **ceramic/porous polymer layered scaffolds** for the repair and regeneration of tissue)

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(FILE 'HOME' ENTERED AT 16:15:13 ON 28 MAR 2003)

FILE 'HCAPLUS' ENTERED AT 16:15:21 ON 28 MAR 2003

L1 289 S ZIMMERMAN M?/AU
L2 2621 S BROWN K?/AU
L3 25503 S LI Y?/AU
L4 2308 S YUAN J?/AU
L5 30684 S L1-4
L6 527 S L5 AND CERAMIC
L7 2 S L6 AND SCAFFOLD
SELECT RN L7 1-2

FILE 'REGISTRY' ENTERED AT 16:16:30 ON 28 MAR 2003

L8 21 S E1-21

FILE 'HCAPLUS' ENTERED AT 16:16:41 ON 28 MAR 2003

FILE 2 S L8 AND L7